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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,593	04/25/2001	Akio Koro	206585US3X	4757

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ALEXANDRIA, VA 22314

EXAMINER
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SORKIN, DAVID L

ART UNIT	PAPER NUMBER
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1723

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DATE MAILED: 01/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/841,593

Applicant(s)

KORO ET AL

Examiner

David L. Sorkin

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 02 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 4-10 and 14-20 is/are allowed.
- 6) ☐ Claim(s) 1-3 and 11-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. The disclosure is objected because the use of the term "leading end" on page 10 lines 4-15 and page 12, lines 10-24 is repugnant to the usage of the term in the art. In the art, the leading end of a blade reaches a given circumferential position before the trailing end. For example, if a rotor is rotating clockwise, the more clockwise end is the leading end, while the more counterclockwise end is the trailing end. See for example Fig 6B, of WO 99/49960, where, according to the specification (page 17), 104 and 108 are leading ends, while 106 and 110 are trailing ends. See also US 4,744,668, col. 2, lines 35-38, "The long wings originate from opposite ends of each rotor; that is, their leading ends are located at opposite ends of the rotor" and Fig. 7. In instant Fig. 2, for each of blades 12, 13, 14 and 15, the more longitudinally middle end is the trailing end, not the leading end.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Lohmann (US 1,406,666). Claims 1, 3, 11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Lohmann (US 1,406,666). Regarding claim 1,

Lohmann ('666) discloses a mixing rotor (embodiment of Figs 11 and 12) for use in a batch mixer including a mixing chamber (see Fig. 1), the mixing rotor comprising a plurality of mixing blades (A,B,C,D), each mixing blade having a tip for defining a tip clearance against an inner surface of the mixing chamber where the mixing rotor is to be rotatably placed to impart shearing forces to a material to be mixed in the tip clearance (see page 2, lines 21-35), wherein the plurality of mixing blades include a pair of longer blades (the pair A,C) twisted in such a direction as to cause the material to flow toward a longitudinal middle side of the mixing rotor, and the pair of longer blades include a first longer blade (C) which is linear in a development of the mixing rotor developed into a plate about its longitudinal axis and extends from one longitudinal end of the mixing rotor toward the longitudinal middle side thereof by or beyond the longitudinal middle thereof, and a second longer blade (A) which is substantially nonlinear in the development and extends from the other end longitudinal end of the mixing rotor toward the longitudinal middle side thereof beyond the longitudinal middle thereof and whose helix angle gradually increases toward the other longitudinal end (see Fig. 12). Regarding claim 11, Lohmann ('666) discloses a chamber including a mixing chamber (12) and a mixing rotor (embodiment of Figs 11 and 12) rotatably placed in the mixing chamber (see Fig. 1), the mixer comprising a plurality of mixing blades (A,B,C,D), each mixing blade having a tip for defining a tip clearance against an inner surface of a mixing chamber to impart shearing forces to a material to be mixed in the tip clearance (see page 2, lines 21-35), wherein the plurality of mixing blades include a pair of longer blades (the pair A,C) twisted in such a direction as to cause the

material to flow toward a longitudinal middle side of the mixing rotor, and the pair of longer blades include a first longer blade (C) which is linear in a development of the mixing rotor developed into a plane about its longitudinal axis and extends from one longitudinal end of the mixing rotor toward the longitudinal middle side thereof by or beyond the longitudinal middle thereof, and a second longer blade (A, respectively) which is substantially nonlinear in the development and extends from the other longitudinal end of the mixing rotor toward the longitudinal middle side thereof and beyond the longitudinal middle thereof and whose helix angle gradually increases toward the other longitudinal end (see Fig. 12). Regarding claims 3 and 13, the end of the first longer blade at the longitudinal middle side of the mixing rotor is located at a position spaced apart from the second longer blade by 120 degrees or larger in the circumferential direction of the mixing rotor (see Fig. 12). Note that the reference specifically indicates that the drawing is a scale drawing on page 1, lines 70-74).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lohmann ('666) in view of Nortey (WO 99/49960). Lohmann ('666), discussed above regarding claims 1 and 11, depicts the linear blade helical angles of approximately 36 degrees in Fig. 12, which is 1 degree outside the claimed range of 15-35 degrees.

Nortey ('960) explains on page 40, lines 11-13 that blade angles of mixing rotors may be adjusted to suit particular properties of the material being mixed. Therefore it is considered that it would have been obvious to one of ordinary skill in the art to have adjusted the angle of the blades to suit particular material properties as taught by Nortey ('960) on page 40 lines 11-13.

***Allowable Subject Matter***

6. Claims 4-10 and 14-20 are allowed.

***Response to Arguments***

7. The amended claims are not rejected under section 112.
8. Regalia US 2001/0050880 is no longer relied upon.
9. While it is unclear what applicant means by "[blades of] Lohmann do not extend for one end the other longitudinal end". The examiner considers that blade A, B, C and D, each extend from leading ends at longitudinal ends of the rotor to trailing ends. It is clear from instant Fig. 1, the term "extends from a longitudinal end" does not mean that a portion of the blade is actually present at the absolute longitudinal end point of the rotor, but the it is used in a more relative, directional sense.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1723

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 703-308-1121. The examiner can normally be reached on 8:00 -5:30 Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



David Sorkin

January 16, 2003



CHARLES E. COOLEY  
PRIMARY EXAMINER